

FRAV20030005.ST25.txt  
SEQUENCE LISTING

<110> AVENTIS PHARMA S.A.

CNRS

INSERM

<120> OB RGRP

<130> FRAV2003/0005

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<170> PatentIn version 3.1

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&lt;210&gt; 3

&lt;211&gt; 396

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&lt;220&gt;

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&lt;222&gt; (1)..(396)

&lt;223&gt;

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1				5				10					15			

gga	ctg	act	ttt	ctt	atg	ctg	gga	tgt	gcc	tta	gag	gat	tat	ggc	ggt	96
Gly	Leu	Thr	Phe	Leu	Met	Leu	Gly	Cys	Ala	Leu	Glu	Asp	Tyr	Gly	Val	
			20					25					30			

tac	tgg	ccc	tta	ttc	gtc	ctg	att	ttc	cac	gcc	atc	tcc	ccc	atc	ccc	144
Tyr	Trp	Pro	Leu	Phe	Val	Leu	Ile	Phe	His	Ala	Ile	Ser	Pro	Ile	Pro	
		35					40					45				

cat	ttc	att	gcc	aaa	aga	gtc	acc	tat	gac	tca	gat	gca	acc	agt	agt	192
His	Phe	Ile	Ala	Lys	Arg	Val	Thr	Tyr	Asp	Ser	Asp	Ala	Thr	Ser	Ser	
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Ala	Cys	Arg	Glu	Leu	Ala	Tyr	Phe	Phe	Thr	Thr	Gly	Ile	Val	Val	Ser	
65					70				75						80	

gcc	ttt	gga	ttt	cct	ggt	att	ctt	gct	cgt	gtg	gct	gtg	atc	aaa	tgg	288
Ala	Phe	Gly	Phe	Pro	Val	Ile	Leu	Ala	Arg	Val	Ala	Val	Ile	Lys	Trp	
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gga	gcc	tgc	ggc	ctt	gtg	tgg	gca	ggc	aat	gca	gtc	att	ttc	ctt	aca	336
Gly	Ala	Cys	Gly	Leu	Val	Leu	Ala	Gly	Asn	Ala	Val	Ile	Phe	Leu	Thr	
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ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp  
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Glu Gln Trp  
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Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val  
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35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser  
50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser  
65 70 75 80

Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp  
85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr  
100 105 110

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Glu Gln Trp  
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&lt;223&gt; OB RGRP LUC

&lt;220&gt;

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&lt;222&gt; (1)..(1359)

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Gly	Leu	Thr	Phe	Leu	Met	Leu	Gly	Cys	Ala	Leu	Glu	Asp	Tyr	Gly	Val	
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tac	tgg	ccc	tta	ttc	gtc	ctg	att	ttc	cac	gcc	atc	tcc	ccc	atc	ccc	144
Tyr	Trp	Pro	Leu	Phe	Val	Leu	Ile	Phe	His	Ala	Ile	Ser	Pro	Ile	Pro	
		35					40					45				

cat	ttc	att	gcc	aaa	aga	gtc	acc	tat	gac	tca	gat	gca	acc	agt	agt	192
His	Phe	Ile	Ala	Lys	Arg	Val	Thr	Tyr	Asp	Ser	Asp	Ala	Thr	Ser	Ser	
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gcc	tgt	cgg	gaa	ctg	gca	tat	ttc	ttc	act	act	gga	att	gtt	gtt	tct	240
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Ala	Phe	Gly	Phe	Pro	Val	Ile	Leu	Ala	Arg	Val	Ala	Val	Ile	Lys	Trp	
				85					90					95		

gga	gcc	tgc	ggc	ctt	gtg	ttg	gca	ggc	aat	gca	gtc	att	ttc	ctt	aca	336
Gly	Ala	Cys	Gly	Leu	Val	Leu	Ala	Gly	Asn	Ala	Val	Ile	Phe	Leu	Thr	
			100					105					110			

att	caa	ggg	ttt	ttc	ctt	ata	ttt	gga	aga	gga	gat	gat	ttt	agc	tgg	384
Ile	Gln	Gly	Phe	Phe	Leu	Ile	Phe	Gly	Arg	Gly	Asp	Asp	Phe	Ser	Trp	
		115					120					125				

gag	cag	tgg	att	ccg	ggg	gat	cca	ccg	gct	aga	gcc	acc	atg	acc	agc	432
Glu	Gln	Trp	Ile	Pro	Gly	Asp	Pro	Pro	Ala	Arg	Ala	Thr	Met	Thr	Ser	
	130					135					140					

aag	gtg	tac	gac	ccc	gag	cag	agg	aag	agg	atg	atc	acc	ggc	ccc	cag	480
Lys	Val	Tyr	Asp	Pro	Glu	Gln	Arg	Lys	Arg	Met	Ile	Thr	Gly	Pro	Gln	
145					150					155					160	

tgg	tgg	gcc	agg	tgc	aag	cag	atg	aac	gtg	ctg	gac	agc	ttc	atc	aac	528
Trp	Trp	Ala	Arg	Cys	Lys	Gln	Met	Asn	Val	Leu	Asp	Ser	Phe	Ile	Asn	
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tac	tac	gac	agc	gag	aag	cac	gcc	gag	aac	gcc	gtg	atc	ttc	ctg	cac	576
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FRAV20030005.ST25.txt

Tyr	Tyr	Asp	Ser 180	Glu	Lys	His	Ala	Glu 185	Asn	Ala	Val	Ile	Phe 190	Leu	His	
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gag Glu	ccc Pro 210	gtg Val	gcc Ala	agg Arg	tgc Cys	atc Ile 215	atc Ile	ccc Pro	gat Asp	ctg Leu	atc Ile 220	ggc Gly	atg Met	ggc Gly	aag Lys	672
agc Ser 225	ggc Gly	aag Lys	agc Ser	ggc Gly	aac Asn 230	ggc Gly	agc Ser	tac Tyr	agg Arg	ctg Leu 235	ctg Leu	gac Asp	cac His	tac Tyr	aag Lys 240	720
tac Tyr	ctg Leu	acc Thr	gcc Ala	tgg Trp 245	ttc Phe	gag Glu	ctc Leu	ctg Leu	aac Asn 250	ctg Leu	ccc Pro	aag Lys	aag Lys	atc Ile 255	atc Ile	768
ttc Phe	gtg Val	ggc Gly	cac His 260	gac Asp	tgg Trp	ggc Gly	gcc Ala	tgc Cys 265	ctg Leu	gcc Ala	ttc Phe	cac His	tac Tyr 270	agc Ser	tac Tyr	816
gag Glu	cac His	cag Gln 275	gac Asp	aag Lys	atc Ile	aag Lys	gcc Ala 280	atc Ile	gtg Val	cac His	gcc Ala	gag Glu 285	agc Ser	gtg Val	gtg Val	864
gac Asp 290	gtg Val	atc Ile	gag Glu	agc Ser	tgg Trp	gac Asp 295	gag Glu	tgg Trp	cca Pro	gac Asp	atc Ile 300	gag Glu	gag Glu	gac Asp	atc Ile	912
gcc Ala 305	ctg Leu	atc Ile	aag Lys	agc Ser	gag Glu 310	gag Glu	ggc Gly	gag Glu	aag Lys	atg Met 315	gtg Val	ctg Leu	gag Glu	aac Asn	aac Asn 320	960
ttc Phe	ttc Phe	gtg Val	gag Glu	acc Thr 325	atg Met	ctg Leu	ccc Pro	agc Ser	aag Lys 330	atc Ile	atg Met	aga Arg	aag Lys	ctg Leu 335	gag Glu	1008
ccc Pro	gag Glu	gag Glu	ttc Phe 340	gcc Ala	gcc Ala	tac Tyr	ctg Leu	gag Glu 345	ccc Pro	ttc Phe	aag Lys	gag Glu	aag Lys 350	ggc Gly	gag Glu	1056
gtg Val	aga Arg	aga Arg 355	ccc Pro	acc Thr	ctg Leu	agc Ser	tgg Trp 360	ccc Pro	aga Arg	gag Glu	atc Ile	ccc Pro 365	ctg Leu	gtg Val	aag Lys	1104
ggc Gly	ggc Gly	aag Lys	ccc Pro	gac Asp	gtg Val	gtg Val 375	cag Gln	atc Ile	gtg Val	aga Arg	aac Asn 380	tac Tyr	aac Asn	gcc Ala	tac Tyr	1152
ctg Leu 385	aga Arg	gcc Ala	agc Ser	gac Asp	gac Asp 390	ctg Leu	ccc Pro	aag Lys	atg Met	ttc Phe 395	atc Ile	gag Glu	agc Ser	gac Asp	ccc Pro 400	1200
ggc Gly	ttc Phe	ttc Phe	agc Ser	aac Asn 405	gcc Ala	atc Ile	gtg Val	gag Glu	ggc Gly 410	gcc Ala	aag Lys	aag Lys	ttc Phe	ccc Pro 415	aac Asn	1248
acc Thr	gag Glu	ttc Phe	gtg Val 420	aag Lys	gtg Val	aag Lys	ggc Gly	ctg Leu 425	cac His	ttc Phe	agc Ser	cag Gln	gag Glu 430	gac Asp	gcc Ala	1296
ccc Pro	gac Asp	gag Glu 435	atg Met	ggc Gly	aag Lys	tac Tyr	atc Ile 440	aag Lys	agc Ser	ttc Phe	gtg Val	gag Glu 445	aga Arg	gtg Val	ctg Leu	1344
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Lys Asn Glu Gln  
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Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val  
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Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro  
35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser  
50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser  
65 70 75 80

Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp  
85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr  
100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp  
115 120 125

Glu Gln Trp Ile Pro Gly Asp Pro Pro Ala Arg Ala Thr Met Thr Ser  
130 135 140

Lys Val Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln  
145 150 155 160

Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn  
165 170 175

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Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His  
 180 185 190  
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 195 200 205  
 Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys  
 210 215 220  
 Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys  
 225 230 235 240  
 Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile  
 245 250 255  
 Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser Tyr  
 260 265 270  
 Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser Val Val  
 275 280 285  
 Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu Glu Asp Ile  
 290 295 300  
 Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val Leu Glu Asn Asn  
 305 310 315 320  
 Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu  
 325 330 335  
 Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu  
 340 345 350  
 Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys  
 355 360 365  
 Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr  
 370 375 380  
 Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro  
 385 390 395 400  
 Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn  
 405 410 415  
 Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala  
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gga ctg act ttt ctt atg ctg gga tgt gcc tta gag gat tat ggc gtt	96
Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val	
20 25 30	
tac tgg ccc tta ttc gtc ctg att ttc cac gcc atc tcc ccc atc ccc	144
Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro	
35 40 45	
cat ttc att gcc aaa aga gtc acc tat gac tca gat gca acc agt agt	192
His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser	
50 55 60	
gcc tgt cgg gaa ctg gca tat ttc ttc act act gga att gtt gtt tct	240
Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser	
65 70 75 80	
gcc ttt gga ttt cct gtt att ctt gct cgt gtg gct gtg atc aaa tgg	288
Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp	
85 90 95	
gga gcc tgc ggc ctt gtg ttg gca ggc aat gca gtc att ttc ctt aca	336
Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr	
100 105 110	
att caa ggg ttt ttc ctt ata ttt gga aga gga gat gat ttt agc tgg	384



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Glu	Gln	Trp	Ile	Pro	Val	Ala	Thr	Met	Val	Ser	Lys	Gly	Glu	Glu	Leu		
	130					135					140						
ttc	acc	ggg	gtg	gtg	ccc	atc	ctg	gtc	gag	ctg	gac	ggc	gac	gta	aac	480	
Phe	Thr	Gly	Val	Val	Pro	Ile	Leu	Val	Glu	Leu	Asp	Gly	Asp	Val	Asn		
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				165					170					175			
ggc	aag	ctg	acc	ctg	aag	ttc	atc	tgc	acc	acc	ggc	aag	ctg	ccc	gtg	576	
Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val		
			180					185					190				
ccc	tgg	ccc	acc	ctc	gtg	acc	acc	ttc	ggc	tac	ggc	gtg	cag	tgc	ttc	624	
Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe	Gly	Tyr	Gly	Val	Gln	Cys	Phe		
		195				200						205					
gcc	cgc	tac	ccc	gac	cac	atg	cgc	cag	cac	gac	ttc	ttc	aag	tcc	gcc	672	
Ala	Arg	Tyr	Pro	Asp	His	Met	Arg	Gln	His	Asp	Phe	Phe	Lys	Ser	Ala		
	210					215					220						
atg	ccc	gaa	ggc	tac	gtc	cag	gag	cgc	acc	atc	ttc	ttc	aag	gac	gac	720	
Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu	Arg	Thr	Ile	Phe	Phe	Lys	Asp	Asp		
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gtg	aac	cgc	atc	gag	ctg	aag	ggc	atc	gac	ttc	aag	gag	gac	ggc	aac	816	
Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe	Lys	Glu	Asp	Gly	Asn		
			260					265					270				
atc	ctg	ggg	cac	aag	ctg	gag	tac	aac	tac	aac	agc	cac	aac	gtc	tat	864	
Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr	Asn	Ser	His	Asn	Val	Tyr		
		275					280					285					
atc	atg	gcc	gac	aag	cag	aag	aac	ggc	atc	aag	gtg	aac	ttc	aag	atc	912	
Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly	Ile	Lys	Val	Asn	Phe	Lys	Ile		
	290					295					300						
cgc	cac	aac	atc	gag	gac	ggc	agc	gtg	cag	ctc	gcc	gac	cac	tac	cag	960	
Arg	His	Asn	Ile	Glu	Asp	Gly	Ser	Val	Gln	Leu	Ala	Asp	His	Tyr	Gln		
305				310					315						320		
cag	aac	acc	ccc	atc	ggc	gac	ggc	ccc	gtg	ctg	ctg	ccc	gac	aac	cac	1008	
Gln	Asn	Thr	Pro	Ile	Gly	Asp	Gly	Pro	Val	Leu	Leu	Pro	Asp	Asn	His		
				325					330					335			
tac	ctg	agc	tac	cag	tcc	gcc	ctg	agc	aaa	gac	ccc	aac	gag	aag	cgc	1056	
Tyr	Leu	Ser	Tyr	Gln	Ser	Ala	Leu	Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg		
			340					345					350				
gat	cac	atg	gtc	ctg	ctg	gag	ttc	gtg	acc	gcc	gcc	ggg	atc	act	ctc	1104	
Asp	His	Met	Val	Leu	Leu	Glu	Phe	Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu		
		355					360					365					
ggc	atg	gac	gag	ctg	tac	aag	tac									1128	
Gly	Met	Asp	Glu	Leu	Tyr	Lys											
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&lt;223&gt; OB RGRP YFP

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&lt;400&gt; 8

Met Ala Gly Val Lys Ala Leu Val Ala Leu Ser Phe Ser Gly Ala Ile  
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Gly Leu Thr Phe Leu Met Leu Gly Cys Ala Leu Glu Asp Tyr Gly Val  
 20 25 30

Tyr Trp Pro Leu Phe Val Leu Ile Phe His Ala Ile Ser Pro Ile Pro  
 35 40 45

His Phe Ile Ala Lys Arg Val Thr Tyr Asp Ser Asp Ala Thr Ser Ser  
 50 55 60

Ala Cys Arg Glu Leu Ala Tyr Phe Phe Thr Thr Gly Ile Val Val Ser  
 65 70 75 80

Ala Phe Gly Phe Pro Val Ile Leu Ala Arg Val Ala Val Ile Lys Trp  
 85 90 95

Gly Ala Cys Gly Leu Val Leu Ala Gly Asn Ala Val Ile Phe Leu Thr  
 100 105 110

Ile Gln Gly Phe Phe Leu Ile Phe Gly Arg Gly Asp Asp Phe Ser Trp  
 115 120 125

Glu Gln Trp Ile Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu  
 130 135 140

Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn  
 145 150 155 160

Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr  
 165 170 175

Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val  
 180 185 190

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Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln Cys Phe  
195 200 205

Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys Ser Ala  
210 215 220

Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp  
225 230 235 240

Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu  
245 250 255

Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn  
260 265 270

Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr  
275 280 285

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Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr Asp Tyr Phe Leu
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Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp Ala Asn Trp Asn
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FRAV20030005.ST25.txt

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Asp	Lys	Ile	Val	Ser	Ala	Thr	Ser	Leu	Leu	Val	Asp	Ser	Ile	Leu	Pro	
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ggg	tct	tcg	tat	gag	gtt	cag	gtg	agg	ggc	aag	aga	ctg	gat	ggc	cca	1008
Gly	Ser	Ser	Tyr	Glu	Val	Gln	Val	Arg	Gly	Lys	Arg	Leu	Asp	Gly	Pro	
				325				330						335		
gga	atc	tgg	agt	gac	tgg	agt	act	cct	cgt	gtc	ttt	acc	aca	caa	gat	1056
Gly	Ile	Trp	Ser	Asp	Trp	Ser	Thr	Pro	Arg	Val	Phe	Thr	Thr	Gln	Asp	
			340					345				350				
gtc	ata	tac	ttt	cca	cct	aaa	att	ctg	aca	agt	gtt	ggg	tct	aat	gtt	1104
Val	Ile	Tyr	Phe	Pro	Pro	Lys	Ile	Leu	Thr	Ser	Val	Gly	Ser	Asn	Val	
		355					360					365				
tct	ttt	cac	tgc	atc	tat	aag	aag	gaa	aac	aag	att	gtt	ccc	tca	aaa	1152
Ser	Phe	His	Cys	Ile	Tyr	Lys	Lys	Glu	Asn	Lys	Ile	Val	Pro	Ser	Lys	
	370					375					380					
gag	att	gtt	tgg	tgg	atg	aat	tta	gct	gag	aaa	att	cct	caa	agc	cag	1200
Glu	Ile	Val	Trp	Trp	Met	Asn	Leu	Ala	Glu	Lys	Ile	Pro	Gln	Ser	Gln	
385					390					395					400	
tat	gat	gtt	gtg	agt	gat	cat	gtt	agc	aaa	gtt	act	ttt	ttc	aat	ctg	1248
Tyr	Asp	Val	Val	Ser	Asp	His	Val	Ser	Lys	Val	Thr	Phe	Phe	Asn	Leu	
				405					410					415		
aat	gaa	acc	aaa	cct	cga	gga	aag	ttt	acc	tat	gat	gca	gtg	tac	tgc	1296
Asn	Glu	Thr	Lys	Pro	Arg	Gly	Lys	Phe	Thr	Tyr	Asp	Ala	Val	Tyr	Cys	
			420					425					430			
tgc	aat	gaa	cat	gaa	tgc	cat	cat	cgc	tat	gct	gaa	tta	tat	gtg	att	1344
Cys	Asn	Glu	His	Glu	Cys	His	His	Arg	Tyr	Ala	Glu	Leu	Tyr	Val	Ile	
		435					440					445				
gat	gtc	aat	atc	aat	atc	tca	tgt	gaa	act	gat	ggg	tac	tta	act	aaa	1392

## FRAV20030005.ST25.txt

Asp 450	Val	Asn	Ile	Asn	Ile	Ser 455	Cys	Glu	Thr	Asp 460	Gly	Tyr	Leu	Thr	Lys	
atg Met 465	act Thr	tgc Cys	aga Arg	tgg Trp	tca Ser 470	acc Thr	agt Ser	aca Thr	atc Ile	cag Gln 475	tca Ser	ctt Leu	gcg Ala	gaa Glu	agc Ser 480	1440
act Thr	ttg Leu	caa Gln	ttg Leu	agg Arg 485	tat Tyr	cat His	agg Arg	agc Ser	agc Ser 490	ctt Leu	tac Tyr	tgt Cys	tct Ser	gat Asp 495	att Ile	1488
cca Pro	tct Ser	att Ile	cat His 500	ccc Pro	ata Ile	tct Ser	gag Glu	ccc Pro 505	aaa Lys	gat Asp	tgc Cys	tat Tyr	ttg Leu 510	cag Gln	agt Ser	1536
gat Asp	ggt Gly	ttt Phe 515	tat Tyr	gaa Glu	tgc Cys	att Ile	ttc Phe 520	cag Gln	cca Pro	atc Ile	ttc Phe	cta Leu 525	tta Leu	tct Ser	ggc Gly	1584
tac Tyr	aca Thr 530	atg Met	tgg Trp	att Ile	agg Arg	atc Ile 535	aat Asn	cac His	tct Ser	cta Leu	ggt Gly 540	tca Ser	ctt Leu	gac Asp	tct Ser	1632
cca Pro 545	cca Pro	aca Thr	tgt Cys	gtc Val	ctt Leu 550	cct Pro	gat Asp	tct Ser	gtg Val	gtg Val 555	aag Lys	cca Pro	ctg Leu	cct Pro	cca Pro 560	1680
tcc Ser	agt Ser	gtg Val	aaa Lys	gca Ala 565	gaa Glu	att Ile	act Thr	ata Ile	aac Asn 570	att Ile	gga Gly	tta Leu	ttg Leu	aaa Lys 575	ata Ile	1728
tct Ser	tgg Trp	gaa Glu	aag Lys 580	cca Pro	gtc Val	ttt Phe	cca Pro	gag Glu 585	aat Asn	aac Asn	ctt Leu	caa Gln	ttc Phe 590	cag Gln	att Ile	1776
cgc Arg	tat Tyr 595	ggt Gly	tta Leu	agt Ser	gga Gly	aaa Lys	gaa Glu 600	gta Val	caa Gln	tgg Trp	aag Lys	atg Met 605	tat Tyr	gag Glu	gtt Val	1824
tat Tyr 610	gat Asp	gca Ala	aaa Lys	tca Ser	aaa Lys	tct Ser 615	gtc Val	agt Ser	ctc Leu	cca Pro	gtt Val 620	cca Pro	gac Asp	ttg Leu	tgt Cys	1872
gca Ala 625	gtc Val	tat Tyr	gct Ala	gtt Val	cag Gln 630	gtg Val	cgc Arg	tgt Cys	aag Lys	agg Arg 635	cta Leu	gat Asp	gga Gly	ctg Leu	gga Gly 640	1920
tat Tyr	tgg Trp	agt Ser	aat Asn	tgg Trp 645	agc Ser	aat Asn	cca Pro	gcc Ala	tac Tyr 650	aca Thr	gtt Val	gtc Val	atg Met	gat Asp 655	ata Ile	1968
aaa Lys	gtt Val	cct Pro	atg Met 660	aga Arg	gga Gly	cct Pro	gaa Glu	ttt Phe 665	tgg Trp	aga Arg	ata Ile	att Ile	aat Asn 670	gga Gly	gat Asp	2016
act Thr	atg Met	aaa Lys 675	aag Lys	gag Glu	aaa Lys	aat Asn	gtc Val 680	act Thr	tta Leu	ctt Leu	tgg Trp	aag Lys 685	ccc Pro	ctg Leu	atg Met	2064
aaa Lys 690	aat Asn	gac Asp	tca Ser	ttg Leu	tgc Cys	agt Ser 695	gtt Val	cag Gln	aga Arg	tat Tyr	gtg Val 700	ata Ile	aac Asn	cat His	cat His	2112
act Thr 705	tcc Ser	tgc Cys	aat Asn	gga Gly	aca Thr 710	tgg Trp	tca Ser	gaa Glu	gat Asp	gtg Val 715	gga Gly	aat Asn	cac His	acg Thr	aaa Lys 720	2160
ttc Thr	act Thr	ttc Thr	ctg Thr	tgg Thr	aca Thr	gag Thr	caa Thr	gca Thr	cat Thr	act Thr	gtt Thr	acg Thr	gtt Thr	ctg Thr	gcc Thr	2208

FRAV20030005.ST25.txt

Phe	Thr	Phe	Leu	Trp 725	Thr	Glu	Gln	Ala	His 730	Thr	Val	Thr	Val	Leu 735	Ala		
atc	aat	tca	att	ggt	gct	tct	ggt	gca	aat	ttt	aat	tta	acc	ttt	tca	2256	
Ile	Asn	Ser	Ile 740	Gly	Ala	Ser	Val	Ala 745	Asn	Phe	Asn	Leu	Thr 750	Phe	Ser		
tgg	cct	atg	agc	aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	2304	
Trp	Pro	Met 755	Ser	Lys	Val	Asn	Ile 760	Val	Gln	Ser	Leu	Ser 765	Ala	Tyr	Pro		
tta	aac	agc	agt	tgt	gtg	att	ggt	tcc	tgg	ata	cta	tca	ccc	agt	gat	2352	
Leu	Asn 770	Ser	Ser	Cys	Val	Ile 775	Val	Ser	Trp	Ile	Leu 780	Ser	Pro	Ser	Asp		
tac	aag	cta	atg	tat	ttt	att	att	gag	tgg	aaa	aat	ctt	aat	gaa	gat	2400	
Tyr 785	Lys	Leu	Met	Tyr	Phe 790	Ile	Ile	Glu	Trp	Lys 795	Asn	Leu	Asn	Glu	Asp 800		
ggt	gaa	ata	aaa	tgg	ctt	aga	atc	tct	tca	tct	ggt	aag	aag	tat	tat	2448	
Gly	Glu	Ile	Lys	Trp 805	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr 815	Tyr		
atc	cat	gat	cat	ttt	atc	ccc	att	gag	aag	tac	cag	ttc	agt	ctt	tac	2496	
Ile	His	Asp	His 820	Phe	Ile	Pro	Ile	Glu 825	Lys	Tyr	Gln	Phe	Ser 830	Leu	Tyr		
cca	ata	ttt	atg	gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	2544	
Pro	Ile	Phe 835	Met	Glu	Gly	Val	Gly 840	Lys	Pro	Lys	Ile	Ile 845	Asn	Ser	Phe		
act	caa	gat	gat	att	gaa	aaa	cac	cag	agt	gat	gca	ggt	tta	tat	gta	2592	
Thr	Gln 850	Asp	Asp	Ile	Glu	Lys 855	His	Gln	Ser	Asp	Ala 860	Gly	Leu	Tyr	Val		
att	gtg	cca	gta	att	att	tcc	tct	tcc	atc	tta	ttg	ctt	gga	aca	tta	2640	
Ile 865	Val	Pro	Val	Ile 870	Ile	Ser	Ser	Ser	Ile	Leu 875	Leu	Leu	Gly	Thr	Leu 880		
tta	ata	tca	cac	caa	aga	atg	aaa	aag	cta	ttt	tgg	gaa	gat	ggt	ccg	2688	
Leu	Ile	Ser	His 885	Gln	Arg	Met	Lys	Lys	Leu 890	Phe	Trp	Glu	Asp	Val 895	Pro		
aac	ccc	aag	aat	tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	2736	
Asn	Pro	Lys	Asn 900	Cys	Ser	Trp	Ala	Gln 905	Gly	Leu	Asn	Phe	Gln 910	Lys	Arg		
acg	gac	att	ctg	gat	cca	ccg	gct	aga	gcc	acc	atg	acc	agc	aag	gtg	2784	
Thr	Asp	Ile 915	Leu	Asp	Pro	Pro	Ala 920	Arg	Ala	Thr	Met	Thr 925	Ser	Lys	Val		
tac	gac	ccc	gag	cag	agg	aag	agg	atg	atc	acc	ggc	ccc	cag	tgg	tgg	2832	
Tyr	Asp 930	Pro	Glu	Gln	Arg	Lys 935	Arg	Met	Ile	Thr	Gly 940	Pro	Gln	Trp	Trp		
gcc	agg	tgc	aag	cag	atg	aac	gtg	ctg	gac	agc	ttc	atc	aac	tac	tac	2880	
Ala 945	Arg	Cys	Lys	Gln	Met 950	Asn	Val	Leu	Asp	Ser 955	Phe	Ile	Asn	Tyr	Tyr 960		
gac	agc	gag	aag	cac	gcc	gag	aac	gcc	gtg	atc	ttc	ctg	cac	ggc	aac	2928	
Asp	Ser	Glu	Lys 965	His	Ala	Glu	Asn	Ala 970	Val	Ile	Phe	Leu	His	Gly 975	Asn		
gcc	gct	agc	agc	tac	ctg	tgg	agg	cac	gtg	gtg	ccc	cac	atc	gag	ccc	2976	
Ala	Ala	Ser	Ser 980	Tyr	Leu	Trp	Arg	His 985	Val	Val	Pro	His	Ile 990	Glu	Pro		
gtg	gcc	agg	tgc	atc	atc	ccc	gat	ctg	atc	ggc	atg	ggc	aag	agc	ggc	3024	

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Val	Ala	Arg	Cys	Ile	Ile	Pro	Asp	Leu	Ile	Gly	Met	Gly	Lys	Ser	Gly	
995							1000						1005			
aag Lys	agc Ser 1010	ggc Gly	aac Asn	ggc Gly	agc Ser	tac Tyr 1015	agg Arg	ctg Leu	ctg Leu	gac Asp	cac His 1020	tac Tyr	aag Lys	tac Tyr		3069
ctg Leu	acc Thr 1025	gcc Ala	tgg Trp	ttc Phe	gag Glu	ctc Leu 1030	ctg Leu	aac Asn	ctg Leu	ccc Pro	aag Lys 1035	aag Lys	atc Ile	atc Ile		3114
ttc Phe	gtg Val 1040	ggc Gly	cac His	gac Asp	tgg Trp	ggc Gly 1045	gcc Ala	tgc Cys	ctg Leu	gcc Ala	ttc Phe 1050	cac His	tac Tyr	agc Ser		3159
tac Tyr	gag Glu 1055	cac His	cag Gln	gac Asp	aag Lys	atc Ile 1060	aag Lys	gcc Ala	atc Ile	gtg Val	cac His 1065	gcc Ala	gag Glu	agc Ser		3204
gtg Val	gtg Val 1070	gac Asp	gtg Val	atc Ile	gag Glu	agc Ser 1075	tgg Trp	gac Asp	gag Glu	tgg Trp	cca Pro 1080	gac Asp	atc Ile	gag Glu		3249
gag Glu	gac Asp 1085	atc Ile	gcc Ala	ctg Leu	atc Ile	aag Lys 1090	agc Ser	gag Glu	gag Glu	ggc Gly	gag Glu 1095	aag Lys	atg Met	gtg Val		3294
ctg Leu	gag Glu 1100	aac Asn	aac Asn	ttc Phe	ttc Phe	gtg Val 1105	gag Glu	acc Thr	atg Met	ctg Leu	ccc Pro 1110	agc Ser	aag Lys	atc Ile		3339
atg Met	aga Arg 1115	aag Lys	ctg Leu	gag Glu	ccc Pro	gag Glu 1120	gag Glu	ttc Phe	gcc Ala	gcc Ala	tac Tyr 1125	ctg Leu	gag Glu	ccc Pro		3384
ttc Phe	aag Lys 1130	gag Glu	aag Lys	ggc Gly	gag Glu	gtg Val 1135	aga Arg	aga Arg	ccc Pro	acc Thr	ctg Leu 1140	agc Ser	tgg Trp	ccc Pro		3429
aga Arg	gag Glu 1145	atc Ile	ccc Pro	ctg Leu	gtg Val	aag Lys 1150	ggc Gly	ggc Gly	aag Lys	ccc Pro	gac Asp 1155	gtg Val	gtg Val	cag Gln		3474
atc Ile	gtg Val 1160	aga Arg	aac Asn	tac Tyr	aac Asn	gcc Ala 1165	tac Tyr	ctg Leu	aga Arg	gcc Ala	agc Ser 1170	gac Asp	gac Asp	ctg Leu		3519
ccc Pro	aag Lys 1175	atg Met	ttc Phe	atc Ile	gag Glu	agc Ser 1180	gac Asp	ccc Pro	ggc Gly	ttc Phe	ttc Phe 1185	agc Ser	aac Asn	gcc Ala		3564
atc Ile	gtg Val 1190	gag Glu	ggc Gly	gcc Ala	aag Lys	aag Lys 1195	ttc Phe	ccc Pro	aac Asn	acc Thr	gag Glu 1200	ttc Phe	gtg Val	aag Lys		3609
gtg Val	aag Lys 1205	ggc Gly	ctg Leu	cac His	ttc Phe	agc Ser 1210	cag Gln	gag Glu	gac Asp	gcc Ala	ccc Pro 1215	gac Asp	gag Glu	atg Met		3654
ggc Gly	aag Lys 1220	tac Tyr	atc Ile	aag Lys	agc Ser	ttc Phe 1225	gtg Val	gag Glu	aga Arg	gtg Val	ctg Leu 1230	aag Lys	aac Asn	gag Glu		3699
cag Gln	taa															3705

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&lt;211&gt; 1234

&lt;212&gt; PRT

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&lt;221&gt; misc\_feature

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&lt;400&gt; 12

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Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg  
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Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile  
 35 40 45

Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr  
 50 55 60

Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser  
 65 70 75 80

Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly  
 85 90 95

Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg  
 100 105 110

Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly  
 115 120 125

Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp  
 130 135 140

Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe  
 145 150 155 160

Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn  
 165 170 175

Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser  
 180 185 190



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Pro Leu Val Pro Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys  
195 200 205

Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys  
210 215 220

Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val  
225 230 235 240

Ile Phe Arg Ser Pro Leu Met Ser Val Gln Pro Ile Asn Met Val Lys  
245 250 255

Pro Asp Pro Pro Leu Gly Leu His Met Glu Ile Thr Asp Asp Gly Asn  
260 265 270

Leu Lys Ile Ser Trp Ser Ser Pro Pro Leu Val Pro Phe Pro Leu Gln  
275 280 285

Tyr Gln Val Lys Tyr Ser Glu Asn Ser Thr Thr Val Ile Arg Glu Ala  
290 295 300

Asp Lys Ile Val Ser Ala Thr Ser Leu Leu Val Asp Ser Ile Leu Pro  
305 310 315 320

Gly Ser Ser Tyr Glu Val Gln Val Arg Gly Lys Arg Leu Asp Gly Pro  
325 330 335

Gly Ile Trp Ser Asp Trp Ser Thr Pro Arg Val Phe Thr Thr Gln Asp  
340 345 350

Val Ile Tyr Phe Pro Pro Lys Ile Leu Thr Ser Val Gly Ser Asn Val  
355 360 365

Ser Phe His Cys Ile Tyr Lys Lys Glu Asn Lys Ile Val Pro Ser Lys  
370 375 380

Glu Ile Val Trp Trp Met Asn Leu Ala Glu Lys Ile Pro Gln Ser Gln  
385 390 395 400

Tyr Asp Val Val Ser Asp His Val Ser Lys Val Thr Phe Phe Asn Leu  
405 410 415

Asn Glu Thr Lys Pro Arg Gly Lys Phe Thr Tyr Asp Ala Val Tyr Cys  
420 425 430

Cys Asn Glu His Glu Cys His His Arg Tyr Ala Glu Leu Tyr Val Ile  
435 440 445

Asp Val Asn Ile Asn Ile Ser Cys Glu Thr Asp Gly Tyr Leu Thr Lys  
450 455 460

FRAV20030005.ST25.txt

Met Thr Cys Arg Trp Ser Thr Ser Thr Ile Gln Ser Leu Ala Glu Ser  
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Thr Leu Gln Leu Arg Tyr His Arg Ser Ser Leu Tyr Cys Ser Asp Ile  
485 490 495

Pro Ser Ile His Pro Ile Ser Glu Pro Lys Asp Cys Tyr Leu Gln Ser  
500 505 510

Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly  
515 520 525

Tyr Thr Met Trp Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser  
530 535 540

Pro Pro Thr Cys Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro  
545 550 555 560

Ser Ser Val Lys Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile  
565 570 575

Ser Trp Glu Lys Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile  
580 585 590

Arg Tyr Gly Leu Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val  
595 600 605

Tyr Asp Ala Lys Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys  
610 615 620

Ala Val Tyr Ala Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly  
625 630 635 640

Tyr Trp Ser Asn Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile  
645 650 655

Lys Val Pro Met Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp  
660 665 670

Thr Met Lys Lys Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met  
675 680 685

Lys Asn Asp Ser Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His  
690 695 700

Thr Ser Cys Asn Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys  
705 710 715 720

Phe Thr Phe Leu Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala  
725 730 735

Ile Asn Ser Ile Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser  
 740 745 750  
 Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro  
 755 760 765  
 Leu Asn Ser Ser Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp  
 770 775 780  
 Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp  
 785 790 795 800  
 Gly Glu Ile Lys Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr  
 805 810 815  
 Ile His Asp His Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr  
 820 825 830  
 Pro Ile Phe Met Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe  
 835 840 845  
 Thr Gln Asp Asp Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val  
 850 855 860  
 Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu  
 865 870 875 880  
 Leu Ile Ser His Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro  
 885 890 895  
 Asn Pro Lys Asn Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg  
 900 905 910  
 Thr Asp Ile Leu Asp Pro Pro Ala Arg Ala Thr Met Thr Ser Lys Val  
 915 920 925  
 Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln Trp Trp  
 930 935 940  
 Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn Tyr Tyr  
 945 950 955 960  
 Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His Gly Asn  
 965 970 975  
 Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile Glu Pro  
 980 985 990  
 Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys Ser Gly  
 995 1000 1005

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Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys Tyr  
 1010 1015 1020  
 Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile  
 1025 1030 1035  
 Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser  
 1040 1045 1050  
 Tyr Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser  
 1055 1060 1065  
 Val Val Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu  
 1070 1075 1080  
 Glu Asp Ile Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val  
 1085 1090 1095  
 Leu Glu Asn Asn Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile  
 1100 1105 1110  
 Met Arg Lys Leu Glu Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro  
 1115 1120 1125  
 Phe Lys Glu Lys Gly Glu Val Arg Arg Pro Thr Leu Ser Trp Pro  
 1130 1135 1140  
 Arg Glu Ile Pro Leu Val Lys Gly Gly Lys Pro Asp Val Val Gln  
 1145 1150 1155  
 Ile Val Arg Asn Tyr Asn Ala Tyr Leu Arg Ala Ser Asp Asp Leu  
 1160 1165 1170  
 Pro Lys Met Phe Ile Glu Ser Asp Pro Gly Phe Phe Ser Asn Ala  
 1175 1180 1185  
 Ile Val Glu Gly Ala Lys Lys Phe Pro Asn Thr Glu Phe Val Lys  
 1190 1195 1200  
 Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala Pro Asp Glu Met  
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 Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu Lys Asn Glu  
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<211> 3486

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**<221> CDS**

<222> (1) .. (3486)

**<223>**

[illegible]

FRAV20030005.ST25.txt

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tat Tyr	aag Lys	gtc Val	cat His 180	ctt Leu	tta Leu	tat Tyr	gtt Val	ctg Leu 185	cct Pro	gaa Glu	gtg Val	tta Leu	gaa Glu 190	gat Asp	tca Ser	576
cct Pro	ctg Leu	gtt Val 195	ccc Pro	caa Gln	aaa Lys	ggc Gly	agt Ser 200	ttt Phe	cag Gln	atg Met	gtt Val	cac His 205	tgc Cys	aat Asn	tgc Cys	624
agt Ser	gtt Val 210	cat His	gaa Glu	tgt Cys	tgt Cys	gaa Glu 215	tgt Cys	ctt Leu	gtg Val	cct Pro	gtg Val 220	cca Pro	aca Thr	gcc Ala	aaa Lys	672
ctc Leu 225	aac Asn	gac Asp	act Thr	ctc Leu	ctt Leu 230	atg Met	tgt Cys	ttg Leu	aaa Lys	atc Ile 235	aca Thr	tct Ser	ggt Gly	gga Gly	gta Val 240	720
att Ile	ttc Phe	cgg Arg	tca Ser	cct Pro 245	cta Leu	atg Met	tca Ser	gtt Val	cag Gln 250	ccc Pro	ata Ile	aat Asn	atg Met	gtg Val 255	aag Lys	768
cct Pro	gat Asp	cca Pro	cca Pro 260	tta Leu	ggc Gly	ttg Leu	cat His	atg Met 265	gaa Glu	atc Ile	aca Thr	gat Asp	gat Asp 270	ggt Gly	aat Asn	816
tta Leu	aag Lys	att Ile 275	tct Ser	tgg Trp	tcc Ser	agc Ser	cca Pro 280	cca Pro	ttg Leu	gta Val	cca Pro	ttt Phe 285	cca Pro	ctt Leu	caa Gln	864
tat Tyr	caa Gln 290	gtg Val	aaa Lys	tat Tyr	tca Ser	gag Glu 295	aat Asn	tct Ser	aca Thr	aca Thr	gtt Val 300	atc Ile	aga Arg	gaa Glu	gct Ala	912
gac Asp 305	aag Lys	att Ile	gtc Val	tca Ser	gct Ala 310	aca Thr	tcc Ser	ctg Leu	cta Leu	gta Val 315	gac Asp	agt Ser	ata Ile	ctt Leu	cct Pro 320	960
ggg Gly	tct Ser	tcg Ser	tat Tyr	gag Glu 325	gtt Val	cag Gln	gtg Val	agg Arg	ggc Gly 330	aag Lys	aga Arg	ctg Leu	gat Asp	ggc Gly 335	cca Pro	1008
gga Gly	atc Ile	tgg Trp	agt Ser 340	gac Asp	tgg Trp	agt Ser	act Thr	cct Pro 345	cgt Arg	gtc Val	ttt Phe	acc Thr	aca Thr 350	caa Gln	gat Asp	1056
gtc Val	ata Ile	tac Tyr 355	ttt Phe	cca Pro	cct Pro	aaa Lys	att Ile 360	ctg Leu	aca Thr	agt Ser	gtt Val	ggg Gly 365	tct Ser	aat Asn	gtt Val	1104
tct Ser	ttt Phe 370	cac His	tgc Cys	atc Ile	tat Tyr	aag Lys 375	aag Lys	gaa Glu	aac Asn	aag Lys	att Ile 380	gtt Val	ccc Pro	tca Ser	aaa Lys	1152
gag Glu 385	att Ile	gtt Val	tgg Trp	tgg Trp	atg Met 390	aat Asn	tta Leu	gct Ala	gag Glu	aaa Lys 395	att Ile	cct Pro	caa Gln	agc Ser	cag Gln 400	1200
tat Tyr	gat Asp	gtt Val	gtg Val	agt Ser 405	gat Asp	cat His	gtt Val	agc Ser	aaa Lys 410	gtt Val	act Thr	ttt Phe	ttc Phe	aat Asn 415	ctg Leu	1248
aat	gaa	acc	aaa	cct	cga	gga	aag	ttt	acc	tat	gat	gca	gtg	tac	tgc	1296

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Asn	Glu	Thr	Lys 420	Pro	Arg	Gly	Lys	Phe 425	Thr	Tyr	Asp	Ala	Val 430	Tyr	Cys	
tgc Cys	aat Asn	gaa Glu 435	cat His	gaa Glu	tgc Cys	cat His 440	cat His	cgc Arg	tat Tyr	gct Ala	gaa Glu 445	tta Leu	tat Tyr	gtg Val	att Ile	1344
gat Asp	gtc Val 450	aat Asn	atc Ile	aat Asn	atc Ile	tca Ser 455	tgt Cys	gaa Glu	act Thr	gat Asp	ggg Gly 460	tac Tyr	tta Leu	act Thr	aaa Lys	1392
atg Met 465	act Thr	tgc Cys	aga Arg	tgg Trp	tca Ser 470	acc Thr	agt Ser	aca Thr	atc Ile	cag Gln 475	tca Ser	ctt Leu	gcg Ala	gaa Glu	agc Ser 480	1440
act Thr	ttg Leu	caa Gln	ttg Leu	agg Arg 485	tat Tyr	cat His	agg Arg	agc Ser	agc Ser 490	ctt Leu	tac Tyr	tgt Cys	tct Ser	gat Asp 495	att Ile	1488
cca Pro	tct Ser	att Ile	cat His 500	ccc Pro	ata Ile	tct Ser	gag Glu	ccc Pro 505	aaa Lys	gat Asp	tgc Cys	tat Tyr	ttg Leu 510	cag Gln	agt Ser	1536
gat Asp	ggg Gly 515	ttt Phe	tat Tyr	gaa Glu	tgc Cys	att Ile	ttc Phe 520	cag Gln	cca Pro	atc Ile	ttc Phe 525	cta Leu 525	tta Leu	tct Ser	ggc Gly	1584
tac Tyr 530	aca Thr	atg Met	tgg Trp	att Ile	agg Arg	atc Ile 535	aat Asn	cac His	tct Ser	cta Leu	ggg Gly 540	tca Ser	ctt Leu	gac Asp	tct Ser	1632
cca Pro 545	cca Pro	aca Thr	tgt Cys	gtc Val 550	ctt Leu 550	cct Pro	gat Asp	tct Ser	gtg Val 555	gtg Val	aag Lys	cca Pro	ctg Leu	cct Pro	cca Pro 560	1680
tcc Ser	agt Ser	gtg Val	aaa Lys	gca Ala 565	gaa Glu	att Ile	act Thr	ata Ile	aac Asn 570	att Ile	gga Gly	tta Leu	ttg Leu	aaa Lys 575	ata Ile	1728
tct Ser	tgg Trp	gaa Glu	aag Lys 580	cca Pro	gtc Val	ttt Phe	cca Pro	gag Glu 585	aat Asn	aac Asn	ctt Leu	caa Gln	ttc Phe 590	cag Gln	att Ile	1776
cgc Arg	tat Tyr	ggg Gly 595	tta Leu	agt Ser	gga Gly	aaa Lys	gaa Glu 600	gta Val	caa Gln	tgg Trp	aag Lys	atg Met 605	tat Tyr	gag Glu	gtt Val	1824
tat Tyr	gat Asp 610	gca Ala	aaa Lys	tca Ser	aaa Lys	tct Ser 615	gtc Val	agt Ser	ctc Leu	cca Pro	gtt Val 620	cca Pro	gac Asp	ttg Leu	tgt Cys	1872
gca Ala 625	gtc Val	tat Tyr	gct Ala	gtt Val	cag Gln 630	gtg Val	cgc Arg	tgt Cys	aag Lys	agg Arg	cta Leu	gat Asp	gga Gly	ctg Leu	gga Gly 640	1920
tat Tyr	tgg Trp	agt Ser	aat Asn 645	tgg Trp	agc Ser	aat Asn	cca Pro	gcc Ala	tac Tyr 650	aca Thr	gtt Val	gtc Val	atg Met 655	gat Asp	ata Ile	1968
aaa Lys	gtt Val	cct Pro	atg Met 660	aga Arg	gga Gly	cct Pro	gaa Glu	ttt Phe 665	tgg Trp	aga Arg	ata Ile	att Ile	aat Asn 670	gga Gly	gat Asp	2016
act Thr	atg Met	aaa Lys 675	aag Lys	gag Glu	aaa Lys	aat Asn	gtc Val 680	act Thr	tta Leu	ctt Leu	tgg Trp	aag Lys 685	ccc Pro	ctg Leu	atg Met	2064
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FRAV20030005.ST25.txt

Lys	Asn	Asp	Ser	Leu	Cys	Ser	Val	Gln	Arg	Tyr	Val	Ile	Asn	His	His	
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Thr	Ser	Cys	Asn	Gly	Thr	Trp	Ser	Glu	Asp	Val	Gly	Asn	His	Thr	Lys	
705				710						715					720	
ttc	act	ttc	ctg	tgg	aca	gag	caa	gca	cat	act	gtt	acg	gtt	ctg	gcc	2208
Phe	Thr	Phe	Leu	Trp	Thr	Glu	Gln	Ala	His	Thr	Val	Thr	Val	Leu	Ala	
				725					730					735		
atc	aat	tca	att	ggc	gct	tct	gtt	gca	aat	ttt	aat	tta	acc	ttt	tca	2256
Ile	Asn	Ser	Ile	Gly	Ala	Ser	Val	Ala	Asn	Phe	Asn	Leu	Thr	Phe	Ser	
			740					745					750			
tgg	cct	atg	agc	aaa	gta	aat	atc	gtg	cag	tca	ctc	agt	gct	tat	cct	2304
Trp	Pro	Met	Ser	Lys	Val	Asn	Ile	Val	Gln	Ser	Leu	Ser	Ala	Tyr	Pro	
		755					760					765				
tta	aac	agc	agt	tgt	gtg	att	gtt	tcc	tgg	ata	cta	tca	ccc	agt	gat	2352
Leu	Asn	Ser	Ser	Cys	Val	Ile	Val	Ser	Trp	Ile	Leu	Ser	Pro	Ser	Asp	
	770					775					780					
tac	aag	cta	atg	tat	ttt	att	att	gag	tgg	aaa	aat	ctt	aat	gaa	gat	2400
Tyr	Lys	Leu	Met	Tyr	Phe	Ile	Ile	Glu	Trp	Lys	Asn	Leu	Asn	Glu	Asp	
					790					795					800	
ggc	gaa	ata	aaa	tgg	ctt	aga	atc	tct	tca	tct	gtt	aag	aag	tat	tat	2448
Gly	Glu	Ile	Lys	Trp	Leu	Arg	Ile	Ser	Ser	Ser	Val	Lys	Lys	Tyr	Tyr	
				805					810					815		
atc	cat	gat	cat	ttt	atc	ccc	att	gag	aag	tac	cag	ttc	agt	ctt	tac	2496
Ile	His	Asp	His	Phe	Ile	Pro	Ile	Glu	Lys	Tyr	Gln	Phe	Ser	Leu	Tyr	
			820					825					830			
cca	ata	ttt	atg	gaa	gga	gtg	gga	aaa	cca	aag	ata	att	aat	agt	ttc	2544
Pro	Ile	Phe	Met	Glu	Gly	Val	Gly	Lys	Pro	Lys	Ile	Ile	Asn	Ser	Phe	
		835					840					845				
act	caa	gat	gat	att	gaa	aaa	cac	cag	agt	gat	gca	ggc	tta	tat	gta	2592
Thr	Gln	Asp	Asp	Ile	Glu	Lys	His	Gln	Ser	Asp	Ala	Gly	Leu	Tyr	Val	
	850					855					860					
att	gtg	cca	gta	att	att	tcc	tct	tcc	atc	tta	ttg	ctt	gga	aca	tta	2640
Ile	Val	Pro	Val	Ile	Ile	Ser	Ser	Ser	Ile	Leu	Leu	Leu	Gly	Thr	Leu	
					870					875					880	
tta	ata	tca	cac	caa	aga	atg	aaa	aag	cta	ttt	tgg	gaa	gat	gtt	ccg	2688
Leu	Ile	Ser	His	Gln	Arg	Met	Lys	Lys	Leu	Phe	Trp	Glu	Asp	Val	Pro	
				885					890					895		
aac	ccc	aag	aat	tgt	tcc	tgg	gca	caa	gga	ctt	aat	ttt	cag	aag	aga	2736
Asn	Pro	Lys	Asn	Cys	Ser	Trp	Ala	Gln	Gly	Leu	Asn	Phe	Gln	Lys	Arg	
			900					905					910			
acg	gac	att	ctg	gat	cca	ccg	gtc	gcc	acc	atg	gtg	agc	aag	ggc	gag	2784
Thr	Asp	Ile	Leu	Asp	Pro	Pro	Val	Ala	Thr	Met	Val	Ser	Lys	Gly	Glu	
		915					920					925				
gag	ctg	ttc	acc	ggg	gtg	gtg	ccc	atc	ctg	gtc	gag	ctg	gac	ggc	gac	2832
Glu	Leu	Phe	Thr	Gly	Val	Val	Pro	Ile	Leu	Val	Glu	Leu	Asp	Gly	Asp	
		930				935					940					
gta	aac	ggc	cac	aag	ttc	agc	gtg	tcc	ggc	gag	ggc	gag	ggc	gat	gcc	2880
Val	Asn	Gly	His	Lys	Phe	Ser	Val	Ser	Gly	Glu	Gly	Glu	Gly	Asp	Ala	
					950					955					960	
acc	tac	ggc	aag	ctg	acc	ctg	aag	ttc	atc	tgc	acc	acc	ggc	aag	ctg	2928



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Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys	Thr	Thr	Gly	Lys	Leu		
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ccc	gtg	ccc	tgg	ccc	acc	ctc	gtg	acc	acc	ttc	ggc	tac	ggc	gtg	cag	2976	
Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr	Phe	Gly	Tyr	Gly	Val	Gln		
			980					985					990				
tgc	ttc	gcc	cgc	tac	ccc	gac	cac	atg	cgc	cag	cac	gac	ttc	ttc	aag	3024	
Cys	Phe	Ala	Arg	Tyr	Pro	Asp	His	Met	Arg	Gln	His	Asp	Phe	Phe	Lys		
		995					1000					1005					
tcc	gcc	atg	ccc	gaa	ggc	tac	gtc	cag	gag	cgc	acc	atc	ttc	ttc		3069	
Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu	Arg	Thr	Ile	Phe	Phe			
	1010					1015					1020						
aag	gac	gac	ggc	aac	tac	aag	acc	cgc	gcc	gag	gtg	aag	ttc	gag		3114	
Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val	Lys	Phe	Glu			
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ggc	gac	acc	ctg	gtg	aac	cgc	atc	gag	ctg	aag	ggc	atc	gac	ttc		3159	
Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile	Asp	Phe			
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aag	gag	gac	ggc	aac	atc	ctg	ggg	cac	aag	ctg	gag	tac	aac	tac		3204	
Lys	Glu	Asp	Gly	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	Tyr			
	1055					1060					1065						
aac	agc	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	ggc		3249	
Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly			
	1070					1075					1080						
atc	aag	gtg	aac	ttc	aag	atc	cgc	cac	aac	atc	gag	gac	ggc	agc		3294	
Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser			
	1085					1090					1095						
gtg	cag	ctc	gcc	gac	cac	tac	cag	cag	aac	acc	ccc	atc	ggc	gac		3339	
Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Gly	Asp			
	1100					1105					1110						
ggc	ccc	gtg	ctg	ctg	ccc	gac	aac	cac	tac	ctg	agc	tac	cag	tcc		3384	
Gly	Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Tyr	Gln	Ser			
	1115					1120					1125						
gcc	ctg	agc	aaa	gac	ccc	aac	gag	aag	cgc	gat	cac	atg	gtc	ctg		3429	
Ala	Leu	Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu			
	1130					1135					1140						
ctg	gag	ttc	gtg	acc	gcc	gcc	ggg	atc	act	ctc	ggc	atg	gac	gag		3474	
Leu	Glu	Phe	Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu			
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Leu Leu Met Leu Phe His Leu Gly Leu Gln Ala Ser Ile Ser Ala Arg  
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Gln Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Thr Arg Tyr Pro Ile  
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Thr Pro Trp Arg Phe Lys Leu Ser Cys Met Pro Pro Asn Ser Thr Tyr  
 50 55 60

Asp Tyr Phe Leu Leu Pro Ala Gly Leu Ser Lys Asn Thr Ser Asn Ser  
 65 70 75 80

Asn Gly His Tyr Glu Thr Ala Val Glu Pro Lys Phe Asn Ser Ser Gly  
 85 90 95

Thr His Phe Ser Asn Leu Ser Lys Thr Thr Phe His Cys Cys Phe Arg  
 100 105 110

Ser Glu Gln Asp Arg Asn Cys Ser Leu Cys Ala Asp Asn Ile Glu Gly  
 115 120 125

Thr Thr Phe Val Ser Thr Val Asn Ser Leu Val Phe Gln Gln Ile Asp  
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Ala Asn Trp Asn Ile Gln Cys Trp Leu Lys Gly Asp Leu Lys Leu Phe  
 145 150 155 160

Ile Cys Tyr Val Glu Ser Leu Phe Lys Asn Leu Phe Arg Asn Tyr Asn  
 165 170 175

Tyr Lys Val His Leu Leu Tyr Val Leu Pro Glu Val Leu Glu Asp Ser  
 180 185 190

Pro Leu Val Pro Gln Lys Gly Ser Phe Gln Met Val His Cys Asn Cys  
 195 200 205

Ser Val His Glu Cys Cys Glu Cys Leu Val Pro Val Pro Thr Ala Lys  
 210 215 220

Leu Asn Asp Thr Leu Leu Met Cys Leu Lys Ile Thr Ser Gly Gly Val  
 225 230 235 240



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Asp Gly Phe Tyr Glu Cys Ile Phe Gln Pro Ile Phe Leu Leu Ser Gly  
 515 520 525  
 Tyr Thr Met Trp Ile Arg Ile Asn His Ser Leu Gly Ser Leu Asp Ser  
 530 535 540  
 Pro Pro Thr Cys Val Leu Pro Asp Ser Val Val Lys Pro Leu Pro Pro  
 545 550 555 560  
 Ser Ser Val Lys Ala Glu Ile Thr Ile Asn Ile Gly Leu Leu Lys Ile  
 565 570 575  
 Ser Trp Glu Lys Pro Val Phe Pro Glu Asn Asn Leu Gln Phe Gln Ile  
 580 585 590  
 Arg Tyr Gly Leu Ser Gly Lys Glu Val Gln Trp Lys Met Tyr Glu Val  
 595 600 605  
 Tyr Asp Ala Lys Ser Lys Ser Val Ser Leu Pro Val Pro Asp Leu Cys  
 610 615 620  
 Ala Val Tyr Ala Val Gln Val Arg Cys Lys Arg Leu Asp Gly Leu Gly  
 625 630 635 640  
 Tyr Trp Ser Asn Trp Ser Asn Pro Ala Tyr Thr Val Val Met Asp Ile  
 645 650 655  
 Lys Val Pro Met Arg Gly Pro Glu Phe Trp Arg Ile Ile Asn Gly Asp  
 660 665 670  
 Thr Met Lys Lys Glu Lys Asn Val Thr Leu Leu Trp Lys Pro Leu Met  
 675 680 685  
 Lys Asn Asp Ser Leu Cys Ser Val Gln Arg Tyr Val Ile Asn His His  
 690 695 700  
 Thr Ser Cys Asn Gly Thr Trp Ser Glu Asp Val Gly Asn His Thr Lys  
 705 710 715 720  
 Phe Thr Phe Leu Trp Thr Glu Gln Ala His Thr Val Thr Val Leu Ala  
 725 730 735  
 Ile Asn Ser Ile Gly Ala Ser Val Ala Asn Phe Asn Leu Thr Phe Ser  
 740 745 750  
 Trp Pro Met Ser Lys Val Asn Ile Val Gln Ser Leu Ser Ala Tyr Pro  
 755 760 765  
 Leu Asn Ser Ser Cys Val Ile Val Ser Trp Ile Leu Ser Pro Ser Asp  
 770 775 780

Tyr Lys Leu Met Tyr Phe Ile Ile Glu Trp Lys Asn Leu Asn Glu Asp  
 785 790 795 800  
 Gly Glu Ile Lys Trp Leu Arg Ile Ser Ser Ser Val Lys Lys Tyr Tyr  
 805 810 815  
 Ile His Asp His Phe Ile Pro Ile Glu Lys Tyr Gln Phe Ser Leu Tyr  
 820 825 830  
 Pro Ile Phe Met Glu Gly Val Gly Lys Pro Lys Ile Ile Asn Ser Phe  
 835 840 845  
 Thr Gln Asp Asp Ile Glu Lys His Gln Ser Asp Ala Gly Leu Tyr Val  
 850 855 860  
 Ile Val Pro Val Ile Ile Ser Ser Ser Ile Leu Leu Leu Gly Thr Leu  
 865 870 875 880  
 Leu Ile Ser His Gln Arg Met Lys Lys Leu Phe Trp Glu Asp Val Pro  
 885 890 895  
 Asn Pro Lys Asn Cys Ser Trp Ala Gln Gly Leu Asn Phe Gln Lys Arg  
 900 905 910  
 Thr Asp Ile Leu Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu  
 915 920 925  
 Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp  
 930 935 940  
 Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala  
 945 950 955 960  
 Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu  
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 Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly Val Gln  
 980 985 990  
 Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe Phe Lys  
 995 1000 1005  
 Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe  
 1010 1015 1020  
 Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu  
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 Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe  
 1040 1045 1050

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Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr  
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 Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly  
 1070 1075 1080  
 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser  
 1085 1090 1095  
 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp  
 1100 1105 1110  
 Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser  
 1115 1120 1125  
 Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu  
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 Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys  
 20 25 30  
 tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca 144  
 Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro  
 35 40 45  
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Tyr	Cys	Ile	Ala	Arg	Arg	Leu	Val	Asp	Asp	Thr	Asp	Ala	Met	Ser	Asn	
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Ala	Cys	Lys	Glu	Leu	Ala	Ile	Phe	Leu	Thr	Thr	Gly	Ile	Val	Val	Ser	
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Ala	Phe	Gly	Leu	Pro	Ile	Val	Phe	Ala	Arg	Ala	His	Leu	Ile	Glu	Trp	
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gga	gct	tgt	gca	ctt	gtt	ctc	aca	gga	aac	aca	gtc	atc	ttt	gca	act	336
Gly	Ala	Cys	Ala	Leu	Val	Leu	Thr	Gly	Asn	Thr	Val	Ile	Phe	Ala	Thr	
			100					105					110			
ata	cta	ggc	ttt	ttc	ttg	gtc	ttt	gga	agc	aat	gac	gac	ttc	agc	tgg	384
Ile	Leu	Gly	Phe	Phe	Leu	Val	Phe	Gly	Ser	Asn	Asp	Asp	Phe	Ser	Trp	
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Gln	Gln	Trp														
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Tyr	Trp	Pro	Leu	Phe	Val	Leu	Phe	Phe	Tyr	Ile	Leu	Ser	Pro	Ile	Pro	
		35					40					45				
Tyr	Cys	Ile	Ala	Arg	Arg	Leu	Val	Asp	Asp	Thr	Asp	Ala	Met	Ser	Asn	
	50					55					60					
Ala	Cys	Lys	Glu	Leu	Ala	Ile	Phe	Leu	Thr	Thr	Gly	Ile	Val	Val	Ser	
65					70					75					80	
Ala	Phe	Gly	Leu	Pro	Ile	Val	Phe	Ala	Arg	Ala	His	Leu	Ile	Glu	Trp	
				85					90					95		
Gly	Ala	Cys	Ala	Leu	Val	Leu	Thr	Gly	Asn	Thr	Val	Ile	Phe	Ala	Thr	
			100					105					110			
Ile	Leu	Gly	Phe	Phe	Leu	Val	Phe	Gly	Ser	Asn	Asp	Asp	Phe	Ser	Trp	
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Gln Gln Trp  
130

<210> 17

<211> 1359

<212> DNA

<213> Homo sapiens

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<221> misc\_feature

<223> MY47 LUC

<220>

<221> CDS

<222> (1)..(1359)

<223>

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1 5 10 15	
gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa	96
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
20 25 30	
tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca	144
Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
35 40 45	
tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac	192
Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn	
50 55 60	
gct tgt aag gaa ctt gcc atc ttt ctt aca acg ggc att gtc gtg tca	240
Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser	
65 70 75 80	
gct ttt gga ctc cct att gta ttt gcc aga gca cat ctg att gag tgg	288
Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp	
85 90 95	
gga gct tgt gca ctt gtt ctc aca gga aac aca gtc atc ttt gca act	336
Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr	
100 105 110	
ata cta ggc ttt ttc ttg gtc ttt gga agc aat gac gac ttc agc tgg	384
Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp	
115 120 125	
cag cag tgg cga ccg gtg gat cca ccg gct aga gcc acc atg acc agc	432
Gln Gln Trp Arg Pro Val Asp Pro Pro Ala Arg Ala Thr Met Thr Ser	
130 135 140	



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aag Lys 145	gtg Val	tac Tyr	gac Asp	ccc Pro	gag Glu 150	cag Gln	agg Arg	aag Lys	agg Arg	atg Met 155	atc Ile	acc Thr	ggc Gly	ccc Pro	cag Gln 160	480
tgg Trp	tgg Trp	gcc Ala	agg Arg	tgc Cys 165	aag Lys	cag Gln	atg Met	aac Asn	gtg Val 170	ctg Leu	gac Asp	agc Ser	ttc Phe	atc Ile 175	aac Asn	528
tac Tyr	tac Tyr	gac Asp	agc Ser 180	gag Glu	aag Lys	cac His	gcc Ala	gag Glu 185	aac Asn	gcc Ala	gtg Val	atc Ile	ttc Phe 190	ctg Leu	cac His	576
ggc Gly	aac Asn	gcc Ala 195	gct Ala	agc Ser	agc Ser	tac Tyr	ctg Leu 200	tgg Trp	agg Arg	cac His	gtg Val	gtg Val 205	ccc Pro	cac His	atc Ile	624
gag Glu	ccc Pro 210	gtg Val	gcc Ala	agg Arg	tgc Cys	atc Ile 215	atc Ile	ccc Pro	gat Asp	ctg Leu	atc Ile 220	ggc Gly	atg Met	ggc Gly	aag Lys	672
agc Ser 225	ggc Gly	aag Lys	agc Ser	ggc Gly	aac Asn 230	ggc Gly	agc Ser	tac Tyr	agg Arg	ctg Leu 235	ctg Leu	gac Asp	cac His	tac Tyr	aag Lys 240	720
tac Tyr	ctg Leu	acc Thr	gcc Ala	tgg Trp 245	ttc Phe	gag Glu	ctc Leu	ctg Leu	aac Asn 250	ctg Leu	ccc Pro	aag Lys	aag Lys	atc Ile 255	atc Ile	768
ttc Phe	gtg Val	ggc Gly	cac His 260	gac Asp	tgg Trp	ggc Gly	gcc Ala	tgc Cys 265	ctg Leu	gcc Ala	ttc Phe	cac His	tac Tyr 270	agc Ser	tac Tyr	816
gag Glu	cac His	cag Gln 275	gac Asp	aag Lys	atc Ile	aag Lys	gcc Ala 280	atc Ile	gtg Val	cac His	gcc Ala	gag Glu 285	agc Ser	gtg Val	gtg Val	864
gac Asp	gtg Val 290	atc Ile	gag Glu	agc Ser	tgg Trp	gac Asp 295	gag Glu	tgg Trp	cca Pro	gac Asp	atc Ile 300	gag Glu	gag Glu	gac Asp	atc Ile	912
gcc Ala 305	ctg Leu	atc Ile	aag Lys	agc Ser	gag Glu 310	gag Glu	ggc Gly	gag Glu	aag Lys	atg Met 315	gtg Val	ctg Leu	gag Glu	aac Asn	aac Asn 320	960
ttc Phe	ttc Phe	gtg Val	gag Glu	acc Thr 325	atg Met	ctg Leu	ccc Pro	agc Ser	aag Lys 330	atc Ile	atg Met	aga Arg	aag Lys	ctg Leu 335	gag Glu	1008
ccc Pro	gag Glu	gag Glu	ttc Phe 340	gcc Ala	gcc Ala	tac Tyr	ctg Leu 345	gag Glu	ccc Pro	ttc Phe	aag Lys	gag Glu	aag Lys 350	ggc Gly	gag Glu	1056
gtg Val	aga Arg	aga Arg 355	ccc Pro	acc Thr	ctg Leu	agc Ser	tgg Trp 360	ccc Pro	aga Arg	gag Glu	atc Ile	ccc Pro 365	ctg Leu	gtg Val	aag Lys	1104
ggc Gly	ggc Gly 370	aag Lys	ccc Pro	gac Asp	gtg Val	gtg Val 375	cag Gln	atc Ile	gtg Val	aga Arg	aac Asn 380	tac Tyr	aac Asn	gcc Ala	tac Tyr	1152
ctg Leu 385	aga Arg	gcc Ala	agc Ser	gac Asp	gac Asp 390	ctg Leu	ccc Pro	aag Lys	atg Met	ttc Phe 395	atc Ile	gag Glu	agc Ser	gac Asp	ccc Pro 400	1200
ggc Gly	ttc Phe	ttc Phe	agc Ser	aac Asn 405	gcc Ala	atc Ile	gtg Val	gag Glu	ggc Gly 410	gcc Ala	aag Lys	aag Lys	ttc Phe	ccc Pro 415	aac Asn	1248

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acc gag ttc gtg aag gtg aag ggc ctg cac ttc agc cag gag gac gcc 1296  
Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala  
420 425 430

ccc gac gag atg ggc aag tac atc aag agc ttc gtg gag aga gtg ctg 1344  
Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu  
435 440 445

aag aac gag cag taa 1359  
Lys Asn Glu Gln  
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<211> 452

<212> PRT

<213> Homo sapiens

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<223> MY47 LUC

<400> 18

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Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys  
20 25 30

Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro  
35 40 45

Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn  
50 55 60

Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser  
65 70 75 80

Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp  
85 90 95

Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr  
100 105 110

Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp  
115 120 125

Gln Gln Trp Arg Pro Val Asp Pro Pro Ala Arg Ala Thr Met Thr Ser  
130 135 140

FRAV20030005.ST25.txt

Lys Val Tyr Asp Pro Glu Gln Arg Lys Arg Met Ile Thr Gly Pro Gln  
 145 150 155 160  
 Trp Trp Ala Arg Cys Lys Gln Met Asn Val Leu Asp Ser Phe Ile Asn  
 165 170 175  
 Tyr Tyr Asp Ser Glu Lys His Ala Glu Asn Ala Val Ile Phe Leu His  
 180 185 190  
 Gly Asn Ala Ala Ser Ser Tyr Leu Trp Arg His Val Val Pro His Ile  
 195 200 205  
 Glu Pro Val Ala Arg Cys Ile Ile Pro Asp Leu Ile Gly Met Gly Lys  
 210 215 220  
 Ser Gly Lys Ser Gly Asn Gly Ser Tyr Arg Leu Leu Asp His Tyr Lys  
 225 230 235 240  
 Tyr Leu Thr Ala Trp Phe Glu Leu Leu Asn Leu Pro Lys Lys Ile Ile  
 245 250 255  
 Phe Val Gly His Asp Trp Gly Ala Cys Leu Ala Phe His Tyr Ser Tyr  
 260 265 270  
 Glu His Gln Asp Lys Ile Lys Ala Ile Val His Ala Glu Ser Val Val  
 275 280 285  
 Asp Val Ile Glu Ser Trp Asp Glu Trp Pro Asp Ile Glu Glu Asp Ile  
 290 295 300  
 Ala Leu Ile Lys Ser Glu Glu Gly Glu Lys Met Val Leu Glu Asn Asn  
 305 310 315 320  
 Phe Phe Val Glu Thr Met Leu Pro Ser Lys Ile Met Arg Lys Leu Glu  
 325 330 335  
 Pro Glu Glu Phe Ala Ala Tyr Leu Glu Pro Phe Lys Glu Lys Gly Glu  
 340 345 350  
 Val Arg Arg Pro Thr Leu Ser Trp Pro Arg Glu Ile Pro Leu Val Lys  
 355 360 365  
 Gly Gly Lys Pro Asp Val Val Gln Ile Val Arg Asn Tyr Asn Ala Tyr  
 370 375 380  
 Leu Arg Ala Ser Asp Asp Leu Pro Lys Met Phe Ile Glu Ser Asp Pro  
 385 390 395 400  
 Gly Phe Phe Ser Asn Ala Ile Val Glu Gly Ala Lys Lys Phe Pro Asn  
 405 410 415

Thr Glu Phe Val Lys Val Lys Gly Leu His Phe Ser Gln Glu Asp Ala  
 420 425 430

Pro Asp Glu Met Gly Lys Tyr Ile Lys Ser Phe Val Glu Arg Val Leu  
 435 440 445

Lys Asn Glu Gln  
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<212> DNA

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1 5 10 15	

gga ctg atg ttt ttg atg ctt gga tgt gcc ctt cca ata tac aac aaa	96
Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys	
20 25 30	

tac tgg ccc ctc ttt gtt cta ttt ttt tac atc ctt tca cct att cca	144
Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro	
35 40 45	

tac tgc ata gca aga aga tta gtg gat gat aca gat gct atg agt aac	192
Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn	
50 55 60	

gct tgt aag gaa ctt gcc atc ttt ctt aca acg ggc att gtc gtg tca	240
Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser	
65 70 75 80	

gct ttt gga ctc cct att gta ttt gcc aga gca cat ctg att gag tgg	288
Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp	
85 90 95	

## FRAV20030005.ST25.txt

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Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr	
100 105 110	
ata cta ggc ttt ttc ttg gtc ttt gga agc aat gac gac ttc agc tgg	384
Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp	
115 120 125	
cag cag tgg cga ccg gtg gat cca ccg gtc gcc acc atg gtg agc aag	432
Gln Gln Trp Arg Pro Val Asp Pro Pro Val Ala Thr Met Val Ser Lys	
130 135 140	
ggc gag gag ctg ttc acc ggg gtg gtg ccc atc ctg gtc gag ctg gac	480
Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp	
145 150 155 160	
ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc gag ggc gag ggc	528
Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly	
165 170 175	
gat gcc acc tac ggc aag ctg acc ctg aag ttc atc tgc acc acc ggc	576
Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly	
180 185 190	
aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc ttc ggc tac ggc	624
Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly	
195 200 205	
gtg cag tgc ttc gcc cgc tac ccc gac cac atg cgc cag cac gac ttc	672
Val Gln Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe	
210 215 220	
ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag cgc acc atc ttc	720
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe	
225 230 235 240	
ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg aag ttc gag	768
Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu	
245 250 255	
ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc atc gac ttc aag	816
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys	
260 265 270	
gag gac ggc aac atc ctg ggg cac aag ctg gag tac aac tac aac agc	864
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser	
275 280 285	
cac aac gtc tat atc atg gcc gac aag cag aag aac ggc atc aag gtg	912
His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val	
290 295 300	
aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg cag ctc gcc	960
Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala	
305 310 315 320	
gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc gtg ctg ctg	1008
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu	
325 330 335	
ccc gac aac cac tac ctg agc tac cag tcc gcc ctg agc aaa gac ccc	1056
Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro	
340 345 350	
aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg acc gcc gcc	1104
Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala	
355 360 365	

ggg atc act ctc ggc atg gac gag ctg tac aag taa  
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 370 375

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<211> 379

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<223> MYO47 YFP

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<223> MY47 YFP

<400> 20

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Gly Leu Met Phe Leu Met Leu Gly Cys Ala Leu Pro Ile Tyr Asn Lys  
 20 25 30

Tyr Trp Pro Leu Phe Val Leu Phe Phe Tyr Ile Leu Ser Pro Ile Pro  
 35 40 45

Tyr Cys Ile Ala Arg Arg Leu Val Asp Asp Thr Asp Ala Met Ser Asn  
 50 55 60

Ala Cys Lys Glu Leu Ala Ile Phe Leu Thr Thr Gly Ile Val Val Ser  
 65 70 75 80

Ala Phe Gly Leu Pro Ile Val Phe Ala Arg Ala His Leu Ile Glu Trp  
 85 90 95

Gly Ala Cys Ala Leu Val Leu Thr Gly Asn Thr Val Ile Phe Ala Thr  
 100 105 110

Ile Leu Gly Phe Phe Leu Val Phe Gly Ser Asn Asp Asp Phe Ser Trp  
 115 120 125

Gln Gln Trp Arg Pro Val Asp Pro Pro Val Ala Thr Met Val Ser Lys  
 130 135 140

Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp  
 145 150 155 160

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Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly  
165 170 175

Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly  
180 185 190

Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe Gly Tyr Gly  
195 200 205

Val Gln Cys Phe Ala Arg Tyr Pro Asp His Met Arg Gln His Asp Phe  
210 215 220

Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe  
225 230 235 240

Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu  
245 250 255

Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys  
260 265 270

Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser  
275 280 285

His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val  
290 295 300

Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala  
305 310 315 320

Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu  
325 330 335

Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu Ser Lys Asp Pro  
340 345 350

Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala  
355 360 365

Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys  
370 375

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<211> 1114

<212> DNA

<213> Homo sapiens

<400> 21

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cgtcctgatt ttccacgcca tctcccccat cccccatttc attgccaaaa gagtcaccta	240
tgactcagat gcaaccagta gtgcctgtcg ggaactggca tatttcttca ctactggaat	300
tgttgtttct gcctttggat ttcctgttat tcttgctcgt gtggctgtga tcaaattggg	360
agcctgcggc cttgtgttgg caggcaatgc agtcattttc cttacaattc aagggttttt	420
ccttatattt ggaagaggag atgatttttag ctgggagcag tggtagcact ttattctgat	480
tacagtgcac tgaatttctt agaactcata ctatctgtat acatgtgcac atgcggcatt	540
ttactatgaa atttaatatg ctgggttttt taataccttt atatatcatg ttcactttaa	600
gaaagacttc ataagtagga gatgagtttt attctcagca aatagacctg tcaaatttag	660
attatgttac tcaaattatg ttacttgttt ggctgttcat gtagtcacgg tgctctcaga	720
aaatatatta acgcagtctt gtaggcagct gccaccttat gcagtgcac gaaacctttt	780
gcttggggat gtgcttggag aggcagataa cgctgaagca ggctctcat gaccaggaa	840
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caagagcctc aacatttcct agagccttat tagaaatgca gaatctgaag cccactctg	960
gaccaggac attttgatga gatccaaagg agttgtatgc acatgaaagt ttgagaagca	1020
tcatcataga gaagtaaaca tcacaccaa cttccttatt tttccagtgg ctaaaccact	1080
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<223> AS01

<400> 22

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<223> AS02

<400> 23

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<223> AS03

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<223> AS04

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20

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<223> AS12

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<210> 34

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<223> AS13

<400> 34

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20

<210> 35  
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<223> AS15

<400> 35  
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20

<210> 36  
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22

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21

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<210> 42

<211> 47

<212> DNA

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47

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&lt;211&gt; 14

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&lt;223&gt; Artificial

&lt;400&gt; 43

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14

&lt;210&gt; 44

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&lt;220&gt;

&lt;223&gt; Artificial

&lt;400&gt; 44

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&lt;210&gt; 45

&lt;211&gt; 16

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Artificial

&lt;400&gt; 45

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16

&lt;210&gt; 46

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<210> 47

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17